

# **Normal Human Structure: Comprehensive Courseware for Gross, Microscopic and Radiologic Anatomy**

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## **INTRODUCTION**

A firm understanding of normal human structure is essential to the practice of medicine and the other health professions. Much of this content is covered early in medical school, often during the first semester. At the University of Florida we have combined Gross Anatomy, Microscopic Anatomy, Embryology, Cell Biology, Radiologic Anatomy, and parts of Physical Diagnosis into a unified "Normal Human Structure" block curriculum. Students are required to cover more material in less time than ever before. They must also assimilate a huge volume of visual and spatial information for which traditional media have been less than adequate. To overcome these deficiencies we have developed interactive instructional programs for gross, microscopic and radiologic anatomy.

## **METHODS**

Over the past three years our facility has produced more than twelve thousand teaching images. These were captured from a variety of sources including 35mm slides, plain xray film, video equipped microscopes, and direct videography. We selected the laserdisc as our archival and delivery media because this technology handles thousands of high quality images and full motion with ease. Our image archive currently contains the following:

- Several complete cadaveric dissections
- A cross-sectional anatomy collection
- A surface anatomy collection
- A complete histologic slide collection
- Electron micrographs of major tissues
- Normal radiographs, MRI, and CT
- Full motion fluoroscopy of major joints
- Fluoroscopy of major internal organs
- Abnormal radiographs for comparison

We used the HyperCard programming system to build interactive teaching modules based on these images. Our approach has been direct and pragmatic—concentrating on student efficiency and effectiveness. The programs share a simple user interface and support multiple learning styles. Common design elements include:

- Overall outline structure
- Linear, tutorial modes
- Quick look up, reference modes
- Self evaluation modes
- Visual indexes and browsers
- Hypertext cross-links

## **RESULTS**

**Microscopic Anatomy**—This program is in its fifth year of use and has been well accepted by students and faculty. Having rapid access to images of every important histologic structure has allowed our students to efficiently preview before laboratory sessions. The program also contains a 1500 question quiz bank that is popular for review before exams.

**Radiologic Anatomy**—In its third year of use, this program allows students to review several hundred anatomic structures as they appear in all major imaging modalities. Students navigate by structure, image, or organ system. A visual quiz bank allows students to test their knowledge at any time.

**Video Dissector**—A complete guide to dissection is at the core of this, our newest program. Students are able to read about and see each step they need to perform. Unlike the actual cadaver, the program can be rewound to any point in the dissection for review. Students may also use the extensive practical exam module to gain confidence with what they have learned.